



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

✓

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/844,175	04/27/2001	Warren M. Farnworth	MI22-1703	4157
21567	7590	03/17/2004	EXAMINER	
WELLS ST. JOHN P.S. 601 W. FIRST AVENUE, SUITE 1300 SPOKANE, WA 99201			KOBERT, RUSSELL MARC	
			ART UNIT	PAPER NUMBER
			2829	

DATE MAILED: 03/17/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	09/844,175	FARNWORTH ET AL.
	Examiner	Art Unit
	Russell M Kobert	2829

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 29 December 2003.
- 2a) This action is FINAL. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 31-42,54-65,67-70,73 and 74 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 31-42,54-65,67-70,73 and 74 is/are rejected.
- 7) Claim(s) _____ is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Art Unit: 2829

1. Applicant's arguments with respect to claims 31-42, 54-65, 67-70 and 73-74 have been considered but are moot in view of the new ground(s) of rejection.

2. Claims 31-42, 54-65, 67-70 and 73-74 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Applicants claim the details of a removable electrical interconnect apparatus in claim 31. However, it is not clear if the electrical pads on the semiconductor substrate being engaged are part of the claimed invention because the electrical pads on the semiconductor substrate are not a part of the electrical interconnect apparatus. For purposes of understanding what is the intended invention, it is assumed that applicants are claiming a removable electrical interconnect apparatus for any application and as such any removable electrical interconnect apparatus in the art that falls within the meets and bounds of the claimed electrical interconnect apparatus, by itself, is considered to read on the invention as claimed.

Applicants claim the details of a removable engagement probe in claim 54. However, it is not clear if the single conductive pad being engaged is part of the claimed invention because the single conductive pad is not a part of the engagement probe. For purposes of understanding what is the intended invention, it is assumed that applicants are claiming a removable engagement probe for any application and as such any removable engagement probe in the art that falls within the meets and bounds of the claimed engagement probe, by itself, is considered to read on the invention as claimed.

Art Unit: 2829

Moreover, it is not clear if the apex and the knife edge line are one-in-the-same because the claim defines the *apex in the form of at least one knife edge line* (emphasis added) as mentioned in claims 31, 54, 73 and 74.

Furthermore, it is not clear how a knife-edge line can have both a tip and base, as described in claims 34, 36, 57 and 59, since a knife-edge line is only a one-dimensional component.

Additionally, it is not clear how a knife-edge line can have an outer conductor member as described in claims 39 and 42 when the knife-edge line is the narrowest margin of any dimensional object.

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 31-39, 54, 55, 57-65, 67-70, 73 and 74 are rejected under 35 U.S.C. 102(e) as being anticipated by Akamine (5580827).

Akamine anticipates a removable electrical interconnect apparatus (Figure 5C) using the geometry of Figure 3B) for removably engaging electrically conductive pads

Art Unit: 2829

on a semiconductor substrate having integrated circuitry fabricated therein, the apparatus comprising:

a substrate (22 or 56), and

an engagement probe (34 or 67) projecting from the substrate to engage a single conductive pad on a semiconductor substrate having integrated circuitry formed in the semiconductor substrate, the engagement probe having an outer surface comprising an apex in the form of at least one knife-edge line (39 or 72) and comprising semiconductor material (see claim 8; note tip material can be polysilicon) and configured to removably engage the single conductive pad of the substrate comprising operable integrated circuitry and to removably engage another single conductive pad of another substrate also comprising operable integrated circuitry (this use of the engagement probe is considered an inherent characteristic of Akamine; see col 1, ln 32-40); as recited in claim 31.

Akamine anticipates a removable engagement probe (Figure 5C using the geometry of Figure 3B) having an outer surface comprising an apex in the form of at least one knife-edge line (39 or 72) and comprising semiconductor material (see claim 8; note tip material can be polysilicon) and sized and positioned to engage a single conductive pad (this use of the engagement probe is considered an inherent characteristic of Akamine; see col 1, ln 32-40); and

wherein the knife-edge line projects from a penetration stop plane (surface of 22 or 56); as recited in claim 54.

As to claim 32, having the engagement probe (81) formed on a projection (82) from the substrate (86) is anticipated (using the alternative embodiment of Figure 6E).

As to claim 33, having the knife-edge line (39 or 72) projecting from a penetration stop plane (surface of 22 or 56) is visually shown in Figure 3B.

As to claim 35, having the engagement probe (81) formed on a projection (82) from the substrate (86), the knife-edge line (uppermost portion of tip 81) projecting from a penetration stop plane (upper surface of 82) on the projection is anticipated (using the alternate embodiment of Figure 6E).

As to claim 62 and 64, having the knife-edge line (39 or 72) sized and positioned to extend or project elevationally above an uppermost surface of the substrate (22 or 56) is visually shown in Figures 3B and 5C respectfully.

As to claim 63, having the projection (82) including a surface (upper portion of 82) substantially parallel to a surface of the substrate (upper portion of 86) is anticipated (using the alternate embodiment of Figure 6E).

As to claim 67, having the substrate comprising semiconductor material is anticipated by Akamine (col 5, ln 38-39; i.e. silicon).

As to claim 68, having the substrate comprising semiconductor substrate (82) and the engagement probe (81) comprising semiconductor material of the semiconductor substrate is anticipated by Akamine (using the alternate embodiment of Figure 6E).

As to claim 55, having the at least one knife-edge line (uppermost portion of 81) formed on a projection (82) from a substrate (86) is anticipated (using the alternative embodiment of Figure 6E with respect to Figures 3B and 5C).

As to claim 65, wherein the projection (82) has a surface (uppermost portion of 82) substantially parallel to a surface of a substrate (uppermost portion of 86) and which defines the penetration stop plane is anticipated.

As to claim 58, having the knife-edge line (uppermost portion of 81) formed on a projection (82) from a substrate (86) further projecting from the penetration stop plane (uppermost surface of 82) on the projection is anticipated.

As to claim 60, having outermost portions of the apex comprising a first electrically conductive material is considered an inherent property of the tip material (polysilicon) disclosed in Akamine. Moreover, Akamine further states that other materials such as aluminum, gold and tungsten may be used for the tip material (see claim 8).

As to claims 69 and 70, having the engagement probe comprising semiconductor material (both the apex 69 and substrate 56 are made of semiconductor material; see col 5, In 37-39 and claim 8 which states the tip material can be made of polysilicon) is anticipated by Akamine.

As to claims 34, 36, 37, 38, 39, 57, 59, 61, 73 and 74, the added limitations contain inherent features anticipated by Akamine and/or contain limitations not directed to the invention, specifically, a removable electrical interconnect apparatus.

Art Unit: 2829

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

7. Claims 40, 41, 42 and 56 are rejected under 35 U.S.C. 103(a) as being unpatentable over Akamine (5580827) as applied to claims 31 and 54 above, and further in view of Blonder et al (4937653).

As to claims 40, 41 and 42, Blonder et al teach (Figure 2) an engagement probe formed from a semiconductor substrate (10) and the outer surface includes plural v-shaped grooves configured to engage a single conductive pad and the v-shaped grooves include outer conductive layers (14).

As to claim 56, Blonder et al teach the outer surface comprises a plurality of apexes having respective tips and bases.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have combined the teaching of Blonder et al with that of Akamine to make the claimed invention because each teach the use of an apex for focusing current to a point. Moreover, it would have been obvious to duplicate the plural knife-edge lines taught by Akamine in place of the plural v-shaped grooves noted supra to make the invention described in claims 40-42 based on the teaching of Blonder et al. In addition to the teaching by Blonder et al, with respect to claim 56 noted supra, it would have been obvious to have further applied the Blonder et al teaching to that of Akamine to further produce a plurality of apexes having respective tips and bases with a penetration stop plane intermediate the bases and substantially parallel to a surface of a substrate because Akamine teach an apex having a penetration stop plane adjacent to the base of the apex and Blonder et al teach duplication of apexes in a repetitive manner to each other making duplication of apexes and adjacent stop planes an obvious variant. Moreover, one having ordinary skill in the art would have been motivated to combine these teaching because having repetitive apexes and penetration stop planes there between further improves contact surface area resulting in improved conductivity between conductive contacts.

Art Unit: 2829

8. A shortened statutory period for response to this action is set to expire three month(s) from the date of this letter. Failure to respond within the period for response will cause the application to become abandoned. 35 U.S.C. 133

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Russell Kobert whose telephone number is (571) 272-1963. The Examiner's Supervisor, Kammie Cuneo, can be reached at (571) 272-1957. For an automated menu of Tech Center 2800 phone numbers call (571) 272-2800.



Russell M. Kobert
Patent Examiner
Group Art Unit 2829
February 23, 2004



EVAN PERT
PRIMARY EXAMINER